



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Yoshihiro MAEDA et al.

Serial Number: 09/703,959

Art Group Unit: 1751

Filed: November 1, 2000

Examiner: Brian P. Mruk

For: WATER-SOLUBLE POLYMER AND ITS USE

DECLARATION UNDER 37 CFR §1.132

Honorable Commissioner of Patents and Trademarks  
Washington, D.C. 20231

FEB 24 2004

Sir:

I, Shigeru YAMAGUCHI, a citizen of Japan, hereby declare and state the following:

1. I graduated from the Department of Applied Chemistry, Faculty of Engineering, Osaka City University, Osaka, Japan in March 1981, and also received a Master of Engineering from the Faculty of Engineering, Osaka City University, Osaka, Japan in March 1983.

2. Since April 1983, I have been employed by Nippon Shokubai Co., Ltd. of Osaka, Japan, the assignee of the present application. During my employment there, I have been engaged in research and development of water-soluble polymer at the Polymer Research Laboratory of the company.

3. I am also a co-inventor of the present application.

4. I have read and am familiar with the Office Action dated November 18, 2003, in the above-referenced patent application.

5. I have read and am familiar with the contents of the following patent related document cited in the Office Action dated November 18, 2003: USP 6,444,771 to Yamaguchi et al.

6. Under my supervision and control, the following experiments were conducted.

## EXPERIMENTS

### (1) Production of Water-Soluble Polymer:

A water-soluble polymer was prepared in the same way as of Examples 1-1 to 1-5, 2-16 and 2-17 of USP 6,444,771.

### (2) Measurement of Properties of Water-Soluble Polymer:

The clay dispersibility in high-hardness water of the polymer as obtained above was measured according to the procedure described page 33, line 12 to page 34, line 10 in the present specification.

The calcium ion scavengeability of the polymer as obtained in the same way as of Examples 1-1 to 1-5 of USP 6,444,771 was measured according to the procedure described page 32, line 7 to page 33, line 11 in the present specification.

The calcium ion scavengeability of the polymer as obtained in the same way as of Examples 2-16 and 2-17 of USP 6,444,771 was calculated as follows.

The measurement method for the calcium ion scavengeability of USP 6,444,771 is the same that of the present invention. However, in USP 6,444,771, the amount of calcium ion as scavenged by the sample is denoted with the mg (milligram) number in terms of calcium carbonate per 1 g of the solid content of the polymer. In the present invention, the amount of calcium ion as scavenged by the sample is denoted with the gram number in terms of calcium carbonate per 1 g of the solid content of the polymer. Thus, the calcium ion scavengeability of the present invention is 1/1000 of that of USP 6,444,771.

The results are shown in Table 1 below.

Examples of USP 6,444,771	Clay dispersibility in high-hardness water	Calcium ion scavengeability *
1-1	0.12	0.44
1-2	0.15	0.42
1-3	0.10	0.42
1-4	0.11	0.42
1-5	0.09	0.42
2-16	0.12	0.46
2-17	0.10	0.46

\* g in terms of  $\text{CaCO}_3$ /g of the solid content of the polymer

7. Claim 1 of the present invention recites that a calcium ion scavengeability is not less than 0.40 and that a clay dispersibility in high-hardness water is not less than 0.50.

As is evident from Table 1, all of the polymers have a clay dispersibility in high-hardness water of less than 0.50, although all of the polymers have a calcium ion scavengeability of not less than 0.40. Thus, a polymer which falls within the range of claim 1 of the present invention is not obtained in the Examples of USP 6,444,771.

I hereby declare that all statements made herein of my own knowledge are true; and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both under 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Signed this 10th day of February, 2004

  
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